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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,446	01/02/2002	Andrew Tye Hunt	0005-GL-US	5908
24948	7590	03/21/2006	EXAMINER	
ALFRED H. MURATORI MICROCOATING TECHNOLOGIES, INC. 5315 PEACHTREE INDUSTRIAL BLVD ATLANTA, GA 30341-2107			FLETCHER III, WILLIAM P	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030,446

Applicant(s)

HUNT ET AL.

Examiner

William P. Fletcher III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 48-67 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 48-67 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed 1/3/2006 leaves claims 48-65 remain pending.

Election/Restrictions

2. The amendment filed 1/3/2006 renders the restriction requirement of 12/20/2005 moot.

Claim Objections

3. Claim 65 is objected to because of the following informalities: In the last line of the claim, "path" should read "paths." Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. **Claims 48-53, 55, 58-60, and 62 are rejected under 35 U.S.C. 102(a) as being anticipated by Hunt et al. (EP 0 976 847 A2).**

6. With respect to claims 48 and 62, this reference teaches a process for the combustion chemical vapor deposition (CCVD) of a coating on a substrate. The process includes relative movement between the substrate and a plurality of coating heat sources. The substrate inherently cools (i.e., "thermally recovers") to at least some extent between contact with one source and another source.

7. With respect to claims 49-52, this reference teaches that the substrate may be metal (i.e., non-vitreous), ceramic, polymer (i.e., plastic), glass (i.e., vitreous), or cellulosic

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[14:58-15:3]. Because this reference teaches all of the substrates disclosed and claimed by applicant, it is the examiner's position that they are, necessarily, capable of being thermally shocked.

8. With respect to claim 53, this reference teaches flame 24, 26 [Fig. 1].

9. With respect to claim 55, this reference teaches that the temperature preferably remains below 200 °C [15:6-11].

10. With respect to claims 58-60, this reference teaches that the deposited coating may be metal, metal oxide (i.e., a mixture of metal and oxide), phosphide, nitride, boride, or carbide [14:23-30].

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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13. Claims 56, 61, and 63-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt et al.

14. The teaching of this reference is detailed above.

15. With respect to claim 56, this reference does not explicitly teach that relative movement is performed at between 50 to 1,000 in./min.

It is the examiner's position that the rate of relative movement is a result-effective variable effecting the thickness of the coating, the uniformity of the coating, as well as the time taken to complete the overall coating process.

Consequently, absent clear and convincing evidence of unexpected results demonstrating the criticality of the claimed rate of relative movement, it would have been obvious to one of ordinary skill in the art to modify the process of Hunt so as to optimize this result-effective variable by routine experimentation [MPEP 2144.05].

16. With respect to claim 61, this reference does not explicitly state the nature of the temperature reduction as recited in this claim.

As noted above, some temperature reduction is inherent in Hunt's process. It is the examiner's position that the degree of cooling depends upon the spacing of the nature of the substrate, the coating sources, the rate of movement, etc., all of which are well-within the level of skill of one of ordinary skill to control and adjust. Further, it is the examiner's position that the rate and degree of cooling is a result-effective variable effecting the overall thermal stress placed on the substrate and, of course, the time taken to complete the overall coating process.

Consequently, absent clear and convincing evidence of unexpected results demonstrating the criticality of the claimed cooling degree, it would have been obvious to

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one of ordinary skill in the art to modify the process of Hunt so as to optimize this result-effective variable by routine experimentation [MPEP 2144.05].

17. With respect to claims 63-67, while this reference teaches that coating may be performed in a raster pattern [9:12-17], it does not explicitly teach the patterns recited in these claims.

Because Hunt places no restriction on the nature of the pattern formed, it is the examiner's position that it would have been obvious to one of ordinary skill in the art to apply the coating in any expedient and/or desired pattern, determined by the end-use or esthetic taste of the artisan.

18. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hunt et al., as applied to claim 48 above, and further in view of Hunt et al. (US 5,652,021 A).

The teaching of Hunt '847 is detailed above.

While this reference teaches that deposition may be by other than a flame, it does not explicitly teach a plasma torch.

Hunt '021 teaches the equivalence of a flame and a plasma torch in CCVD processes [10:6-7].

Based on this teaching of equivalence, it would have been obvious to one of ordinary skill in the art to modify the process of Hunt '847 so as to utilize, as the coating heat source, a plasma torch.

19. Claim 57 is rejected under 35 U.S.C. 103(a) as being obvious over Hunt et al., as applied to claim 48 above, and further in view of Kilian et al. (EP 0 709 487 A1).

The teaching of Hunt is detailed above.

This reference does not explicitly teach that the substrate is preheated prior to forming the coating.

Kilian teaches that, in a flame spraying deposition process in which the substrate temperature is desired to be 200°C (as in Hunt), that preheating to this temperature contributes to the quality of the deposited film [4:51-52].

Consequently, it would have been obvious to one of ordinary skill in the art to modify the process of Hunt so as to preheat the substrate for the advantage taught by Kilian.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hunt, A. T., et al., *Appl. Phys. Lett.* **63** (2), 266-268 (7/12/1993) is cited here as the seminal CCVD work.

21. The prompt development of clear issues in the prosecution history requires that applicant's reply to this Office action be fully responsive (MPEP § 714.02). When filing an amendment, applicant should specifically point out the support for any amendment made to the disclosure, including new or amended claims (MPEP §§ 714.02 & 2163). A fully responsive reply to this Office action, if it includes new or amended claims, must therefore include an explicit citation (i.e., page number and line number) of that/those portion(s) of the original disclosure which applicant contends support(s) the new or amended limitation(s).


Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P. Fletcher III whose telephone number is (571)

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272-1419. The examiner can normally be reached on Monday through Friday, 9 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

3/18/2006

William Phillip Fletcher III
Patent Examiner, USPTO
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